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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/067,506 | 02/07/2002 | Joichi Ushioda | 33082M120 | 7344 |

7590

10/20/2004

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EXAMINER

KACKAR, RAM N

ART UNIT

PAPER NUMBER

1763

DATE MAILED: 10/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/067,506

Applicant(s)

USHIODA ET AL.

Examiner

Ram N Kackar

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1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-12, 14, 15, 17-21, 25 and 26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 10-12, 14-15, 17-21, 25 and 26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10-12, 14-15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani (US 6028762) in view of Shamouilian et al (US 6320736) and further in view of Grimard et al (US 5903428).

Kamitani discloses a reduced pressure plasma-processing apparatus for etching or film formation having gas supply and exhaust means (Col 1 lines 41-43), an electrostatic chuck (Fig 1B and 3) with base, conductor and dielectric film having protrusions (Fig 2B 5 and 7), heat transfer fluid (9), stepped portion along outer peripheral portion not lower than protrusions (Fig 2A) having outlets in the groove (9) and communication of outlets to region inside of the stepped portion (Fig 1A). Kamitani discloses protrusion height of 5 microns or higher and discloses experiment with 30 micron (Table 4).

Kamitani does not explicitly disclose that the height of the outer stepped portion is higher than the protrusions inside.

Shamouilian et al disclose higher stepped portion at the circumference (Fig 1- 46) to make sure that the gas does not leak.

Therefore it would have been obvious for one of ordinary skill in the art to have a higher portion at the circumference to prevent leak in case manufacturing tolerance at the protrusions may allow not so good a seal at the circumference.

Kamitani as modified by Shamouilian et al does not explicitly disclose 50-100 micron or a shape of protrusions as curved with small area of contact.

Grimard et al disclose a processing vessel having gas supply (Fig 4-410), exhaust means (416) conductor base (Fig 1-104) with dielectric film to make it an electrostatic chuck (102) where the dielectric film has protrusions of ceramic (Col 4 lines 1-3) which are curved at the top (106) with small area of contact (Fig 5-502) and have a height of 5-350 microns (Col 4 lines 15-17).

Therefore it would have been obvious for one of ordinary skill in the art to have a protrusion of small area at top so as to help in providing low restriction for cooling gas, low contamination and ease of dechucking after the completion of the process.

3 Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani (US 6028762) in view of Shamouilian et al (US 6320736) and further in view of Grimard et al (US 5903428) and Kitabayashi et al (US 5530616).

Kamitani as modified by Shamouilian et al and Grimard et al is discussed above

Kamitani as modified by Shamouilian et al and Grimard et al do not disclose protrusion pattern at 0-45 degrees.

Kitabayashi et al disclose a reduced pressure plasma-processing atmosphere (Col 1 lines 10-14) an electrostatic chuck (Col 1 lines 14-15) with base, conductor and dielectric film (Fig 1)

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having protrusions (5) and heat transfer fluid (6) and teach that protrusions may be arranged in many different patterns (Col 4 lines 14-15).

Therefore it would have been obvious to optimize protrusions patterns at an angle in order to get temperature and processing uniformity across the wafer.

Protrusions of ceramic formed by thermal-spraying is a product by process limitation. Product-by-process claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. In re Thorpe, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985)

4 Claims 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamitani (US 6028762) in view of Shamouilian et al (US 6320736) and further in view of Grimard et al (US 5903428) and Yukihiro Kamide (US 5306379).

Kamitani as modified by Shamouilian et al and Grimard et al is discussed above

Kamitani as modified by Shamouilian et al and Grimard et al do not disclose rectangular base.

Yukihiro Kamide discloses a plasma processing apparatus with a rectangular base for rectangular substrates (Fig 2-71).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to have a rectangular base in order to process rectangular substrates.

Response to Amendment

Applicant's arguments filed 9/17/2004 have been fully considered but they are not persuasive.

Applicant argues that there is nothing in Kamitami to suggest that the protrusions are thermal-spray protrusions.

This is a product by process claim and its determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. In re Thorpe, 777F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985).

Applicant argues that Kamitami and Shamouilian are not properly combinable in the manner asserted and even if their combination were proper they do not disclose each and every feature.

This is not persuasive since there is a proper motivation for the combination and all the limitations are disclosed by the combination.

Conclusion

1. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on 571 272 1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RK


SUPERVISOR
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